

# ENZYME IMMUNOASSAY (CHLAMYDIAZYME) FOR THE DETECTION OF CHLAMYDIAL ANTIGEN IN ENDOCERVICAL SPECIMENS

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## ABSTRACT

Endocervical swabs taken from 86 women were tested by the Chlamydiazyme enzyme immunoassay test to detect chlamydial antigens. Compared to cell culture, Chlamydiazyme was 100% sensitive and 90% specific. This test is suitable as alternative diagnostic method to cell culture and has the potential for automation.

**Keywords:** Chlamydia trachomatis, diagnosis, enzyme immunoassay

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Chlamydia trachomatis is a common cause of sexually transmitted disease (STD) and is now recognised to cause a whole range of clinical syndromes and complications (1). The key to control of chlamydial infections is obviously to make laboratory diagnostic services for chlamydial infections readily available. The conventional method of diagnosis is isolation of C. trachomatis in tissue culture, but this method is costly, time consuming and technically demanding. As a result, facilities for culture are often limited to only the larger STD centres and are not generally available to other clinics. Recently, new methods of diagnosis based on the detection of chlamydial antigens have emerged. If proven to be as sensitive and as specific as culture isolation, these tests could have an important public health control potential. In this study we evaluate the sensitivity and specificity of the Chlamydiazyme (Abbotts) Enzyme Immunoassay (EIA) kit.

## MATERIALS AND METHOD

The study population consisted of 86 females prostitutes attending Middle Road Hospital for routine ex-

amination. Triplicate endocervical swabs were taken by inserting a cotton tipped swab into the endocervical canal and rotating it to remove epithelial cells. The first swab (supplied with the Chlamydiazyme kit) was broken off into the special transport medium provided for the Chlamydiazyme test kit. The second was expressed in 1 ml of 0.2 molar sucrose-phosphate buffer, and transported in ice to the laboratory. Cycloheximide-treated McCoy cells were used to cultivate the organism. After 48 and 72 hours incubation, the cells were Giemsa stained and examined under darkfield microscopy for fluorescent inclusions. The third swab was inoculated into modified Thayer-Martin media for the culture of Neisseria gonorrhoeae. Details of the method of culture and identification of N. gonorrhoeae have been previously described (2).

## RESULTS

Table I shows the results of the comparison between Chlamydiazyme and chlamydial culture. The results gave a sensitivity rate of 100% and a specificity rate of 90%. The positive and negative predictive values of Chlamydiazyme was 56% and 100% respectively. The chlamydia isolation rate in this study was 12% and the gonococcal isolation rate was 10%.

Table I  
RESULTS OF EIA AND CULTURE  
FOR C. TRACHOMATIS

Results	Number
EIA and culture negative	68
EIA and culture positive	10
EIA positive, culture negative	8
EIA negative, culture positive	0

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## DISCUSSION

The results of this study showed that Chlamydiazyme EIA compares favourably with cell culture for the di-

agnosis of *C. trachomatis* infection. In this evaluation, Chlamydiazyme had a sensitivity of 100% and a specificity of 90%. Other studies in women have recorded sensitivity and specificity rates of between 67-98% and 89-99%, respectively (3-6). Being based on antigen detection, the Chlamydiazyme test overcomes the problems of viability of organism and transportation that are associated with cell culture. The Chlamydiazyme test is also rapid to perform, taking about 4 hours and may also be automated to screen a large number of specimens. Interestingly the prevalence of chlamydial infection is 10% and higher than prevalence of gonorrhoea. This shows that a chlamydial control program in prostitutes is necessary. This need is further underscored by unpublished data from two earlier studies which showed that 90% of men with nongonococ-

cal urethritis (NGU) contracted their disease from prostitutes (2,7). The chlamydial test is suitable for screening prostitute women for chlamydial infection. It is 100% sensitive and the 90% specificity is not crucial because the detection and treatment of all infected cases far outweighs the risk of overtreating 10% of the patients. Chlamydial infections are treated with tetracyclines or erythromycin and both antibiotics have established safety. It should also be pointed that culture is only 70-80% sensitive (8); therefore a test that is actually more sensitive than culture will appear less than 100% specific in comparison. From a public health control perspective therefore, Chlamydiazyme EIA is extremely suitable as an alternative to culture for screening prostitutes for endocervical chlamydial infections.

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